The data relevant to monitoring the CW Convention may contain either or both sensitive military security information or proprietary business information, both of which must be protected from unauthorized disclosure. Not only must the International Organization ensure that procedures and personnel policies provide such protection, but it may be necessary either to encrypt the data (so that only the transmitter and receiver know the substantive content of the data) or authenticate the data (by which the data are transmitted in clear text, but a coded word is appended to the end of the data stream to reveal any tampering with the data).

Data collection and processing, the second element in the monitoring system, functions principally to collect the process data and prepare them for transmission off-site for further analysis and storage. In many cases, that will mean the use of a local data collection network that ties together the several monitors that are used at each facility. In order to eliminate the reliability problems associated with there being a single, critical node in that network, there should be more than one data collection mode providing redundant coverage of the sensors. Effective verification can be improved by the frequent presence of inspectors which would probably decrease the quantity of instrument data that would need to be transmitted from a site. In some cases, it may be possible that no data need be transmitted. Some of the data will be needed in near-real-time by officials at the International Organization, while others may have a timeliness value that allows them to be stored on-site for retrieval during periodic visits by inspectors. Dataproduction rates, and corresponding storage and/or transmission rates, will vary according to the types of instruments used and the complexity of the monitoring system. With the large number of sites having a potential need to be monitored, it will be necessary to match the size of the data transmission subsystem to that of the monitors utilized. Multiplexors should be examined for combining several data streams--whether from several sensors each at the same facility, or possibly from several sensors located at different sites. Another aspect of the data transmission subsystem is the issue of how to transmit the data back to the International Organization. In some cases, it will be necessary to plan for